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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/632,232	07/31/2003	John E. Schreiber	Serie 6041	2544

7590

08/18/2005

Air Liquide  
Suite 1800  
2700 Post Oak Blvd.  
Houston, TX 77056

EXAMINER

DOERRLER, WILLIAM CHARLES

ART UNIT	PAPER NUMBER
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3744

DATE MAILED: 08/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/632,232	Applicant(s) SCHREIBER ET AL.	
	Examiner William C. Doerrler	Art Unit 3744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 22 July 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 14-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 14, 15 and 17-30 is/are rejected.
- 7) ☒ Claim(s) 16 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 14,15,17-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hyde (5,426,948) in view of Brill (6,334,328).

Hyde discloses applicants' basic inventive concept, a dry ice forming machine that expands liquid carbon dioxide to form dry ice which may be pressed into blocks or pellets, substantially as claimed with the exception of using ozone during the production. Brill shows contacting liquid about to be frozen to form solid blocks used for refrigerating with gaseous ozone to keep the resulting solid free of microbial growth to be old in the refrigeration art. It would have been obvious to one of ordinary skill in the

art at the time of applicants' invention from the teaching of Brill to modify the dry ice forming process of Hyde by injecting gaseous ozone into the liquid before solidification to provide a solid which will provide refrigeration as well as reduce the growth of microbes in the cooled area or substance. In regard to claim 18, the air which is passed through the ozone producer of Brill will contain inert gases, such as nitrogen. In regard to claims 15 and 22, the pressure of the liquid carbon dioxide is not given in Hyde, but is seen as a matter of obvious design choice for an ordinary practitioner in the art since it is well known that the liquid need to be pressurized, but overpressurization will result in wasted energy.

Claims 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hyde in view of Slaterry.

Hyde discloses applicants' basic inventive concept, a dry ice forming machine that expands liquid carbon dioxide to form dry ice which may be pressed into blocks or pellets, substantially as claimed with the exception of contacting the solid formed with gaseous ozone. Slaterry shows contacting solid blocks used for refrigerating with gaseous ozone to keep the solid free of microbial growth to be old in the refrigeration art. It would have been obvious to one of ordinary skill in the art at the time of applicants' invention from the teaching of Slaterry to modify the dry ice forming process of Hyde by injecting gaseous ozone into solid to reduce the growth of microbes in the cooled area or substance. Slaterry does not state the pressure of the gas containing ozone. However, the top of column 4 states that the solid is moved due to the gas

pressure. Applicant's claimed pressure is seen as a matter of design choice given that the pressure must be high enough to move the frozen solid vertically.

***Allowable Subject Matter***

Claim 16 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Response to Arguments***

Applicant's arguments with respect to claims 14,15 and 17-30 have been considered but are moot in view of the new ground(s) of rejection. Brill and Slattery show contacting liquid to be solidified and solidified refrigerant, respectively, with ozone to reduce microbial growth.


***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Berge et al teach the incorporation of ozone into liquid to be solidified to reduce microbial growth.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William C. Doerrler whose telephone number is (571) 272-4807. The examiner can normally be reached on Monday-Friday 6:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler can be reached on (571) 272-4834. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
William C Doerrler  
Primary Examiner  
Art Unit 3744

WCD